

In The Claims

Please amend Claims 12, 13, 17, 20-23, 26-33, 36, 38, 40, 41, 43, 45-47, 50-55, 58, 59, 62, 63, 66-68 and 70-72 to read as follows:

B1
12 (amended). A system for charging and discharging a capacitive load, comprising:

a first switch to charge the load;

a second switch to discharge the load;

a capacitive element; and

a switch assembly to connect and disconnect the capacitive element to and from the capacitive load to gradually charge or discharge the capacitive load in conjunction with the operation of said first switch and said second switch.

d
13 (amended). The system of claim 12 wherein said switch assembly includes a third switch connected between said capacitive element and said capacitive load.

B2
17 (amended). The system of claim 16 wherein said third switch has a first terminal connected to the first terminal of the capacitive load and a second terminal connected to a first terminal of said capacitive element.

B3
20 (amended). The system of claim 19 wherein a second terminal of said capacitive element is connected to said source of a potential.

21 (amended). The system of claim 20 wherein a capacitance of said capacitive element is at least an order of magnitude greater than a capacitance of the capacitive load.

d
22 (amended). The system of claim 12, further comprising:
at least two capacitive elements.

such that said switch assembly selectively connects each of said at least two capacitive elements to the capacitive load.

B3d
23 (amended). The system of claim 12, wherein said capacitive element is a capacitor.

26 (amended). A system for charging and discharging a capacitive load from a voltage source comprising:

a first switch to charge the load;

a second switch to discharge the load;

a capacitive element; and

a switch assembly to connect and disconnect the capacitive element to and from the capacitive load to charge or discharge the capacitive load in a plurality of steps.

B4
27 (amended). A method for charging and discharging a capacitive load from a voltage source comprising:

charging the capacitive load with the voltage source;

discharging the capacitive load by connecting the capacitive load through a switch assembly to at least one capacitive element; and

disconnecting the at least one capacitive element from the capacitive load.

✓
28 (amended). The method of claim 27, further comprising:
operating the switch assembly to sequentially discharge the capacitive load through at least two capacitive elements.

29 (amended). A method for charging and discharging a capacitive load from a voltage source comprising:

charging the capacitive load with the voltage source;

temporarily storing the charge from the capacitive load for use in a subsequent charging step in a capacitive element; and

disconnecting the capacitive element from the capacitive load.

C4
30 (twice amended). A system for charging and discharging a load with a source comprising:

a first switch to charge the load;

a second switch to discharge the load;

a capacitive element; and

B4
a third switch to selectively connect and disconnect the capacitive element to and from the load.

31 (twice amended). A system for at least one of charging and discharging a capacitive load in N steps, N being greater than 1, comprising:

N-1 capacitive devices; and

a first switching device operable to selectively couple and de-couple the N-1 capacitive devices to and from the capacitive load during at least one of a charging and a discharging of the capacitive load.

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32 (twice amended). A system of claim 31, wherein the first switching device is operable to selectively couple and de-couple the N-1 capacitive devices to and from the capacitive load during both the charging and the discharging of the capacitive load.

33 (twice amended). The system of claim 31, wherein each of the N-1 capacitive devices includes a capacitor.

B5 d
36 (twice amended). The system of claim 31, wherein the selective coupling and de-coupling of the N-1 capacitive devices to the capacitive load causes at least one of the charging and the discharging of the capacitive load to occur in the N steps.

Sub C5
B6
38 (amended). A system for at least one of charging and discharging a capacitive load comprising:
a plurality of capacitive devices; and
a first switching device operable to selectively couple and de-couple the plurality of capacitive devices to and from the capacitive load during at least one of a charging and a discharging of the capacitive load.

B7 d
40 (amended). The system of claim 38, wherein the first switching device is operable to selectively couple and de-couple the plurality of capacitive devices to and from the capacitive load during both the charging and the discharging of the capacitive load.

41 (amended). The system of claim 38, wherein each of the plurality of capacitive devices includes a capacitor.

B8 d
43 (amended). The system of claim 38, wherein the selective coupling and de-coupling of the plurality of capacitive devices to and from the capacitive load causes at least one of the charging and the discharging of the capacitive load to occur in a plurality of steps.

B9
Sub C6
45 (amended). A method for at least one of charging and discharging a capacitive load comprising:

C 6
selectively coupling and de-coupling a capacitive device to and from the capacitive load to cause at least one of the charging and the discharging of the capacitive load to occur in a plurality of steps.

46 (twice amended). A method of charging and discharging a capacitive load in N steps, N being greater than 1, comprising:

charging the capacitive load;

discharging the capacitive load;

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storing at least a portion of a charge discharged during the discharging step in N-1 capacitive devices for use in a subsequent charging step; and

disconnecting each of the capacitive devices from the load at some point during the N steps.

47 (amended). A system for charging and discharging a capacitive load, comprising:

a discharge switch to discharge the load;

N-1 capacitive elements, N being greater than 1;

a switch assembly including N-1 switches to respectively couple and de-couple the N-1 capacitive to and from the load to charge or discharge the load; and

an Nth switch to couple the load to a power supply voltage.

B10
50 (amended). The system of claim 47 wherein first leads of each of said N-1 capacitive elements are connected together and wherein second leads of each of said N-1 capacitive elements are connected to respective ones of said N-1 switches.

51 (amended). A system for charging and discharging a capacitive load, comprising:

a discharge switch to discharge the load;

N-1 capacitive elements, N being greater than 1;

a switch assembly including N-1 switches to respectively couple and de-couple the N-1 capacitive elements to and from the load to charge or discharge the load in N-1 steps; and

an Nth switch to couple the load to a power supply voltage.

52 (amended). A system for charging and discharging a capacitive load, comprising:

a discharge switch to discharge the load;

N-1 capacitive elements, N being greater than 1;

a switch assembly including N-1 switches to respectively couple and de-couple the N-1 capacitive elements to and from the load, said N-1 switches being closed and opened in succession for charging or discharging the load in N-1 steps; and

an Nth switch to couple the load to a power supply voltage.

53 (amended). A system for charging and discharging a capacitive load, comprising:

a discharge switch to discharge the load;

N-1 capacitive elements, N being greater than 1;

a switch assembly including N-1 switches to respectively couple and de-couple the N-1 charge storage elements to and from the load for charging or discharging the load; and

an Nth switch to couple the load to a power supply voltage;

wherein first leads of each of said N-1 capacitive elements are connected together
and wherein second leads of each of said N-1 capacitive elements are connected to
respective ones of said N-1 switches.

B10-C1
54 (amended). A system for at least one of charging and discharging a capacitive
load in N steps, comprising:

N-1 capacitive elements, N being greater than 1; and
a switch assembly to selectively couple and de-couple the N-1 charge storage
elements to and from the capacitive load.

55 (amended). The system of claim 54, wherein the switch assembly includes N-
1 switches, each coupled to a respective one of the N-1 capacitive elements.

B11
58 (amended). The system of claim 54, wherein the switch assembly selectively
couples and de-couples the N-1 capacitive elements to the capacitive load one at a time.

59 (amended). The system of claim 54, wherein each of the capacitive elements
comprises a capacitor.

C8
62 (amended). A system for at least one of charging and discharging a capacitive
load, comprising:

B10
a plurality of capacitive elements; and
a switch assembly to selectively couple and de-couple the capacitive elements to
and from the capacitive load one at a time.

63 (amended). The system of claim 62, wherein the switch assembly includes a
plurality of switches, each coupled to a respective one of the plurality of capacitive
elements.

d 66 (amended). The system of claim 62, wherein each of the capacitive elements comprises a capacitor.

Sub C9
67 (amended). A system for at least one of charging and discharging a capacitive load, comprising:

B13
a plurality of capacitive elements, each having a first lead and a second lead; and
a plurality of switches to selectively couple and de-couple the capacitive elements to and from the capacitive load,

wherein all of the first leads of the capacitive elements are connected together and
wherein each of the second leads of the capacitive elements is connected to a respective one of the switches.

d 68 (amended). The system of claim 67, further comprising a power supply switch to couple the capacitive load to a power supply.

70 (amended). The system of claim 67, wherein each of the capacitive elements comprises a capacitor.

B14 Sub C10
71 (amended). A system for at least one of charging and discharging a capacitive load in a plurality of steps, comprising:

a plurality of capacitive elements, each capable of storing an amount of charge corresponding to a voltage across the capacitive element; and

a plurality of switches to selectively couple and de-couple the capacitive elements to and from the capacitive load,

wherein the voltages across said capacitive elements are self-stabilizing over a full charge/discharge cycle.

~~72 (amended). A system for at least one of charging and discharging a capacitive load, comprising:~~

~~a capacitor having a first end coupled to a first potential source and a second end;~~

~~a first switch having a first end coupled to the second end of the capacitor and a second end coupled to the capacitive load, the second end of the capacitor not being coupled to any other component;~~

~~a second switch having a first end coupled to the first potential source and a second end coupled to the second end of the first switch and the capacitive load; and~~

~~a third switch having a first end coupled to a second potential source and a second end coupled to the second end of the first switch, the second end of the second switch, and the capacitive load.~~

Please add new claims 73-80 as follows:

~~73. A system for charging and discharging a capacitive load comprising:~~

~~one or more capacitors; and~~

~~a switching system coupled to said capacitors and the load, said switching system configured to cause the capacitors to couple to the load; to cause the capacitors to derive substantially all of their charge from only the load during the discharging of the load; and to cause the capacitors to charge the load with charge from the capacitors.~~

~~74. A method for charging and discharging a capacitive load comprising:~~

~~coupling one or more capacitors to the load;~~

~~charging the capacitors only with charge delivered from the load; and~~

~~charging the load with charge from the capacitors.~~

75. A system for charging and discharging a capacitive load in N steps comprising:

N-1 capacitors, N being greater than 1; and

N-1 switches, each having a first and a second connection, each of said first connections being connected to only one of said capacitors.

76. A method for repeatedly charging and discharging a capacitive load in a plurality of steps comprising:

selectively coupling one or more capacitors to the capacitive load during a first charging cycle and not transferring any substantial charge from the capacitors to the load during the first charging cycle; and

selectively coupling the capacitors to the load during a discharging cycle and transferring substantial charge to the capacitors from the load during the discharging cycle.

77. The method of Claim 76 further comprising:

selectively coupling the capacitors to the load during a second charging cycle and transferring substantial charge from the capacitors to the load during the second charging cycle.

78. The method of Claim 77 during which the charge on each of the capacitors substantially stabilizes after the first charging and discharging cycle.

79. A method for repeatedly charging a capacitive load that is discharged between charges comprising:

charging the capacitive load in only one step during a first charging cycle; and